

Weather Brief, 20050124, 7:30 AM EST

The basic upper level pattern of a strong trough off the east coast and ridge in the west central portion of the NA continent continues, probably through the end of the week. This means cold temperatures for our region through Friday. No big storms are expected, only weak, fast-moving so-called “clipper” systems from the west north-west. These do not have a big moisture source, limiting the potential snowfall. What snow we get will be fluffy, and the consistently cold temperatures will limit ice formation.

Today we expect winds to weaken by landing time as the approach of one of these clippers breaks the pressure gradient and lowers the winds from the 15 mph during the day to less than 10. This system is a bit slower than anticipated previously, and we should not get much snow (if any) until tonight. It won't be much snow, in any case. Temperatures should be around 20 at landing. There is a good chance of snow on Wednesday as a low passes south of us, though only light accumulations are called for. Winds from the northeast will be 10-20 mph and it will be cold (highs around 20). Based on this, flying should still be OK for Wednesday. Thursday gets quite cold, with temperatures around 0 Thursday night. Friday looks very good for flying, sunny with weak winds. As the weekend wears on, the cold air starts to leave us and we get highs in the balmy upper 20s by Saturday.

At Edwards this morning, winds are projected to be weak (5-10 knots) with scattered clouds.

Flight level weather

For today's flight there is a good chance high clouds may be avoided altogether, as there is a projected gap in the latest forecast in cloud along the jet stream where the aircraft is projected to cross. For the remainder of the flight north and back to Pease, we will be above the tropopause. There is a Max winds at 35kft on the jet crossing are expected to be in excess of 130 knots.

For Wednesday's flight, the strong upper level trough over the eastern portions of the continent produce low tropopauses north of us from the west coast of Greenland to the Rocky mountains (mostly below 29 kft, with an absolute max in spots of 35 kft). strong jet along the western Greenland coast of about 150 knots heading northward. The same intrusion of tropospheric PV into the lowermost stratosphere over Ellesmere island as in yesterday's forecast is apparent. Depending on how you define the vortex, it pokes down through the northern half of Ellesmere island, with PSC temperatures (no PSCs – Mark says not enough fixed nitrogen) down to about 70N.

Friday, which is the next flying day, shows the stratospheric vortex in a similar position to Wednesday. If anything, it may be penetrating somewhat further south. Some eastward movement is apparent at 50 mb. This is a result of an effective split in the stratospheric vortex, with one portion over Russia at around 100 E, and a weaker portion

on our side of the planet. See

http://bocachica.arc.nasa.gov/PAVE/asm_rh_omega/TH_peasetp_450K_day412.pdf

At flight level, the trough and associated low tropopauses have moved east somewhat since Wednesday. indicates that we are cloud free to the north and quite far to the east. Only the southwest corner of Hudson's Bay (and southwestward) will be cloudy. Since the tropopause is below 35kft, the clouds indicated over Ellesmere Island would be below the aircraft. See

http://bocachica.arc.nasa.gov/PAVE/rh_omega/TR_peasetp_35kft_day412.pdf Regarding clouds at lower altitudes. It seems like a descent over Toronto has some potential, as the air is dry and forecast clouds are confined to the Boundary Layer (the forecast for which I am skeptical). If we are serious about this we can check further when the time comes (e.g., get the fog forecast for Toronto etc). See

http://bocachica.arc.nasa.gov/PAVE/rh_omega/CA_peasetp_500mb_day412.pdf

for the total cloudiness forecast.

Regarding clouds in other regions, the oceans do not look good for Friday. Though we are under a high in the eastern portion with northwesterly outflow, it looks like the cold air will stimulate the formation of puffies right off the coast. Further east over the ocean the air is moist at low levels, raising the likelihood of clouds.

http://bocachica.arc.nasa.gov/PAVE/rh_omega/RH_peasetp_850mb_day412.pdf